

In the Claims

Claims 1 - 15. (Cancelled)

16. (Previously presented) A process for producing a zeolite of the ZSM-12 type comprising preparing a synthesis gel in an aqueous solution or suspension, which comprises

an aluminum source;

a silicon source comprising precipitated silica having a BET surface area of $\leq 200 \text{ m}^2/\text{g}$;

TEA⁺ as a template; and

an alkali metal or alkaline earth metal ion source M having a valency of n,

wherein the molar H₂O:SiO₂ ratio of the gel is within the range from 5 to 15,

crystallizing the synthesis gel under hydrothermal conditions, while being stirred, so as to obtain a solid;

and removing the solid from the solution in order to obtain, the ZSM-12 type zeolite, wherein the ZSM-12 zeolite has a primary crystal size of $\leq 0.1 \text{ }\mu\text{m}$; and a specific volume, determined by mercury porosimetry at a maximum pressure of 4000 bar, of 30-200 mm³/g in a pore radius range of 4-10 nm.

17. (Previously presented) The process as claimed in claim 16, characterized in that the molar M_{2/n}O:SiO₂ ratio in the synthesis gel is within the range from 0.01 to 0.045.

18. (Previously presented) The process as claimed in claim 16, characterized in that the molar $\text{SiO}_2/\text{Al}_2\text{O}_3$ ratio is within a range from 50 to 150.

19. (Previously presented) The process as claimed in claim 16, characterized in that the crystallization of the synthesis gel is carried out at temperatures of from about 120 to 200°C.

20. (Previously presented) The process as claimed in claim 16, characterized in that the solid is washed with demineralized water until the washing water has an electrical conductivity of less than 100 $\mu\text{S}/\text{cm}$.

21. (Previously presented) The process as claimed in claim 16, characterized in that the crystallization time is from about 50 to 500 h.

22. (Previously presented) The process as claimed in claim 16, characterized in that the solid is washed, dried, comminuted and calcined.

23. (Previously presented) The process as claimed in claim 22, characterized in that the calcination is carried out at a temperature of from 400 to 700°C, for a period of from 3 to 12 h.

24. (Previously presented) The process as claimed in claim 16, characterized in that exchangeable cations present in the zeolite of the ZSM-12 type are exchanged by treating with an aqueous solution of an ammonium compound or of an acid, and the solid obtained after the ion exchange is washed, dried and subsequently calcined.

25. (Previously presented) The process as claimed in claim 16, characterized in that the zeolite of the ZSM-12 type is shaped into a molding.

26. (Previously presented) The process as claimed in claim 25, characterized in that a binder is added to the zeolite of the ZSM-12 type for the preparation of a molded product in an amount from 10 to 90% by weight, based on the total weight of the molded product.

27. (Previously presented) The process as claimed in claim 25, characterized in that the molded product contains at least one transition group metal.

28. (Previously presented) The process as claimed in claim 27, characterized in that the transition group metal comprises a noble metal.

Claims 29. through 34. (Cancelled)

35. (Previously presented) A zeolite of the ZSM-12 type which has a primary crystal size of $\leq 0.1 \mu\text{m}$; and a specific volume, determined by mercury porosimetry at a maximum pressure of 4000 bar, of $30\text{-}200 \text{ mm}^3/\text{g}$ in a pore radius range of 4-10 nm.

36. (Previously presented) The zeolite as claimed in claim 35, characterized in that the zeolite has a specific volume, determined by nitrogen porosimetry, in a pore radius range of 3-20 nm, of $0.05\text{-}0.40 \text{ cm}^3/\text{g}$.

37. (Previously presented) The zeolite as claimed in claim 35, characterized with a molar $\text{SiO}_2/\text{Al}_2\text{O}_3$ ratio of from about 50 to 150.

38. (Previously presented) The zeolite as claimed in claim 35, characterized with a molar $\text{M}_{2/n}\text{O}:\text{SiO}_2$ ratio of from 0.01 to 0.045.

39. (Previously presented) The zeolite as claimed in claim 35, characterized wherein the primary crystals have been combined in agglomerates in a proportion of at least 30%.

40. (Previously presented) The zeolite as claimed in claim 35, characterized in that the primary crystals have a mean diameter of from about 10 to 70 nm.

41. (Previously presented) The zeolite as claimed in claim 39, characterized in that the agglomerates have cavities accessible from their surface or interstices between the primary crystals.

42. (Previously presented) A catalyst for the conversion of organic compounds comprising the zeolite of claim 35.

43. (Previously presented) The catalyst as claimed in claim 42, characterized in that it is in lump form.

44. (Previously presented) The catalyst as claimed in claim 42, further comprising a binder in an amount of from 10 to 90% by weight, based on the total weight of the catalyst.

45. (Previously presented) The catalyst as claimed in claim 42, characterized in that the catalyst contains at least one catalytically active component.

46. (Previously presented) The catalyst as claimed in claim 45, characterized in that the at least one catalytically active component comprises a transition group metal.

47. (Previously presented) The catalyst as claimed in claim 46, characterized in that the transition group metal comprises a noble metal.

48. (Previously presented) The catalyst as claimed in claim 47, characterized in that the noble metal comprises platinum.

49. (Previously presented) The catalyst as claimed in claim 45, characterized in that the catalytically active component comprises from 0.01 to 40% by weight of the catalyst based on the total weight of the catalyst.

50. (Previously presented) A process for converting organic compounds comprising passing an organic feed stream over or through a catalyst bed comprising the ZSM-12 type catalyst of claim 42.

51. (Previously presented) A process for hydroisomerization of higher paraffins having a carbon number greater than 5 carbon atoms, comprising passing a feed stream containing higher paraffins over through a catalyst bed comprising the ZSM-12 type catalyst of claim 42.

52. (Previously presented) The process of claim 51 wherein the higher paraffin comprised n-octane.

53. (Previously presented) The process of claim 50 wherein the organic compounds comprise aromatics.

54. (Previously presented) The process of claim 51 wherein the hydroisomerization process is carried out in the presence of

hydrogen at a temperature below 290°C.

55. (Previously presented) The process of claim 51 wherein the hydroisomerization process is carried out at a pressure of 1 to 50 bar at a liquid hourly space velocity (LHSV) of from 0.1 to 10 l per hour.

56. (Previously presented) A process for reforming a hydrocarbon feed stream comprising passing the hydrocarbon feed stream under reforming conditions over a catalyst comprising the catalyst of claim 42.

57. (Previously presented) A process for increasing the flowability of gas oils comprising passing the gas oils feed stream, under conditions to increase flowability, over the catalyst of claim 42.

58. (Previously presented) A process for catalytic or cracking and oligomerization or polymerization of olefinic or acetylenic hydrocarbons comprising passing the hydrocarbons under catalytic or cracking and oligomerizing or polymerization of olefinic or acetylenic conditions over the catalyst of claim 42.

59. (Previously presented) A process for alkylation of a hydrocarbon feed stream comprising passing the hydrocarbon

feedstream under alkylation conditions over the catalyst of claim 42.

60. (Previously presented) A process for dehydrogenation and hydrogenation of organic compounds comprising passing the organic compounds under dehydrogenation or hydrogenation conditions over the catalyst of claim 42.

61. (Previously presented) A process for the hydration or dehydration of organic compounds comprising passing the organic compounds under hydration or dehydration conditions over the catalyst of claim 42.

62. (Previously presented) A process for the desulfurization of organic compounds comprising passing the organic compounds under desulfurization conditions over the catalyst of claim 42.

63. (Previously presented) A process for conversion of alcohols and ethers to hydrocarbons and conversion of paraffins or olefins to aromatics comprising passing the alcohols and ethers or paraffins or olefins under conversion conditions over the catalyst of claim 42.